

Including Coast Salish Indigenous health priorities in climate change planning

NW Straits Initiative
November 6, 2015



Larry Campbell & Jamie Donatuto
Swinomish Indian Tribal Community



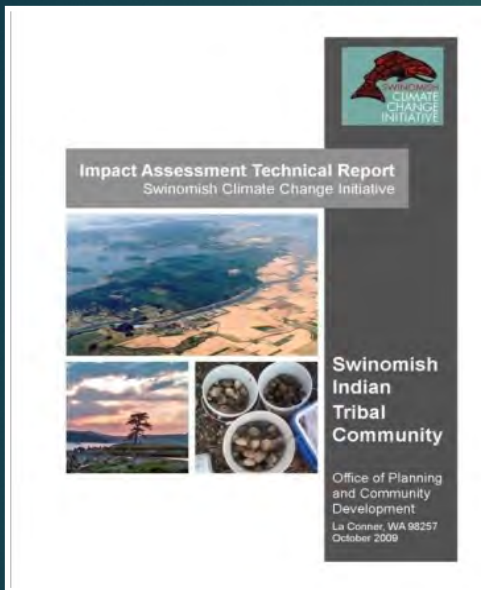
Swinomish



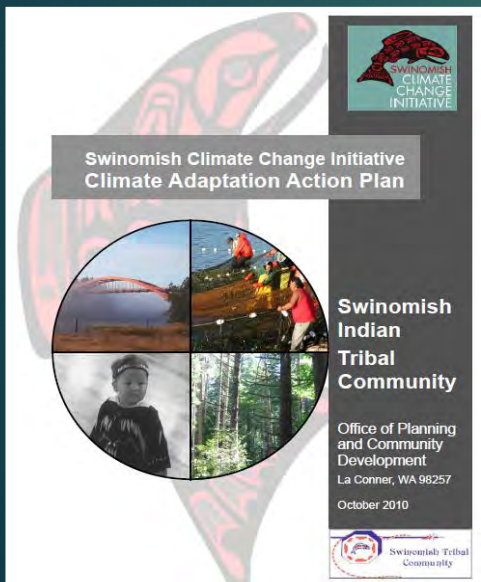
- ▶ Coast Salish people
- ▶ 1855 Treaty of Point Elliott: Sovereign nation
- ▶ Reservation: ~3,000 acres tidelands + ~7,000 acres uplands
- ▶ Reservation 90% surrounded by water
- ▶ ~900 enrolled members

"When the tide is out, the table is set."

Swinomish Climate Change Initiative



- Year 1 – Technical Report (2009):
 - Impact assessment
 - Vulnerability assessment
 - Risk analysis



- Year 2 – Action Plan (2010):
 - Review strategies, criteria
 - Assess requirements
 - Develop/prioritize recommendations

www.swinomish-nsn.gov/climate_change/project/reports.html

Impact Scoping Matrix

Swinomish Climate Change Initiative

POTENTIAL CLIMATE CHANGE IMPACTS BY POLICY SECTORS							20 - 50 YR PROBABILITY: HIGH ←-----→ POSSIBLE		
SWINOMISH INDIAN RESERVATION VICINITY							50-100 YR PROBABILITY: HIGH ←-----→ POSSIBLE		
IMPACT TYPE:	Inundation	Tidal Surge	Severe Storm	Erosion	Salinization	Temp Δ	Heat Stress	Precip Δ	Nutrient Δ
SECTOR/ELEMENT:									
<i>NATURAL SYSTEMS</i>									
Shoreline/Beaches	High	High	High	High					
Tidelands/Marine Habitat	High			Possible		High	High		High
Fish & Wildlife:									
Shellfish	High	High	High			High	High		High
Salmon		High	High			High	High		High
Forage fish		High	High			High	High		High
Waterfowl/shorebirds		High	High			High	High		High
Upland wildlife & habitat			High			High	High	Possible	Possible
Water resources:									
Freshwater						High	High	High	High

Impacts on Human Health

- Heat-related illness (exhaustion, stroke)
- Respiratory problems (asthma, air quality)
- Opportunistic viruses (West Nile, flu)
- Emerging health threats (fungal, viral)
- Food-borne/pollution related threats (toxins, water quality)

Action Plan, Chapter 4: Cultural Tradition and Community Health

- ➡ *“Community wellness”* addresses issues of community resilience and cultural sovereignty that are vital to preparing for significant changes
- ➡ health indicators -- community cohesion, food security, ceremonial use, knowledge transmission, and self determination.
 - e.g., healing gardens, language programs

Indigenous health model



A healthy community encompasses all aspects of tribal relationships and tribal priorities that affect a community. This includes physical, social, mental and spiritual health on individual, familial and community levels, as well as relations between people, the environment, and natural resources.

Coast Salish Indigenous Health Indicators

RESILIENCE

— q^wiqcut —

Self-Esteem • Identity • Sustainability

EDUCATION

— ǰǰusadad —

The Teachings • Elders • Youth

SELF-DETERMINATION

— talǰcut —

Healing & Restoration •
Development • Trust

CULTURAL USE

— yayusbid —

Respect & Stewardship • Sense of
Place • Practice

NATURAL RESOURCE SECURITY

— sʔutiǰdx^w ti swatix^wtǰd —

Quality • Access • Safety

COMMUNITY CONNECTION

— ʔǰshig^wǰd tǰ adʔiisǰd —

Work • Sharing • Relations

Overview: 2013 Pilot Study

Sea Level Rise

Shellfish

Access/
Sediments (erosion)

Seawalls
(Armoring)



Swinomish Community Health

Shellfish Area

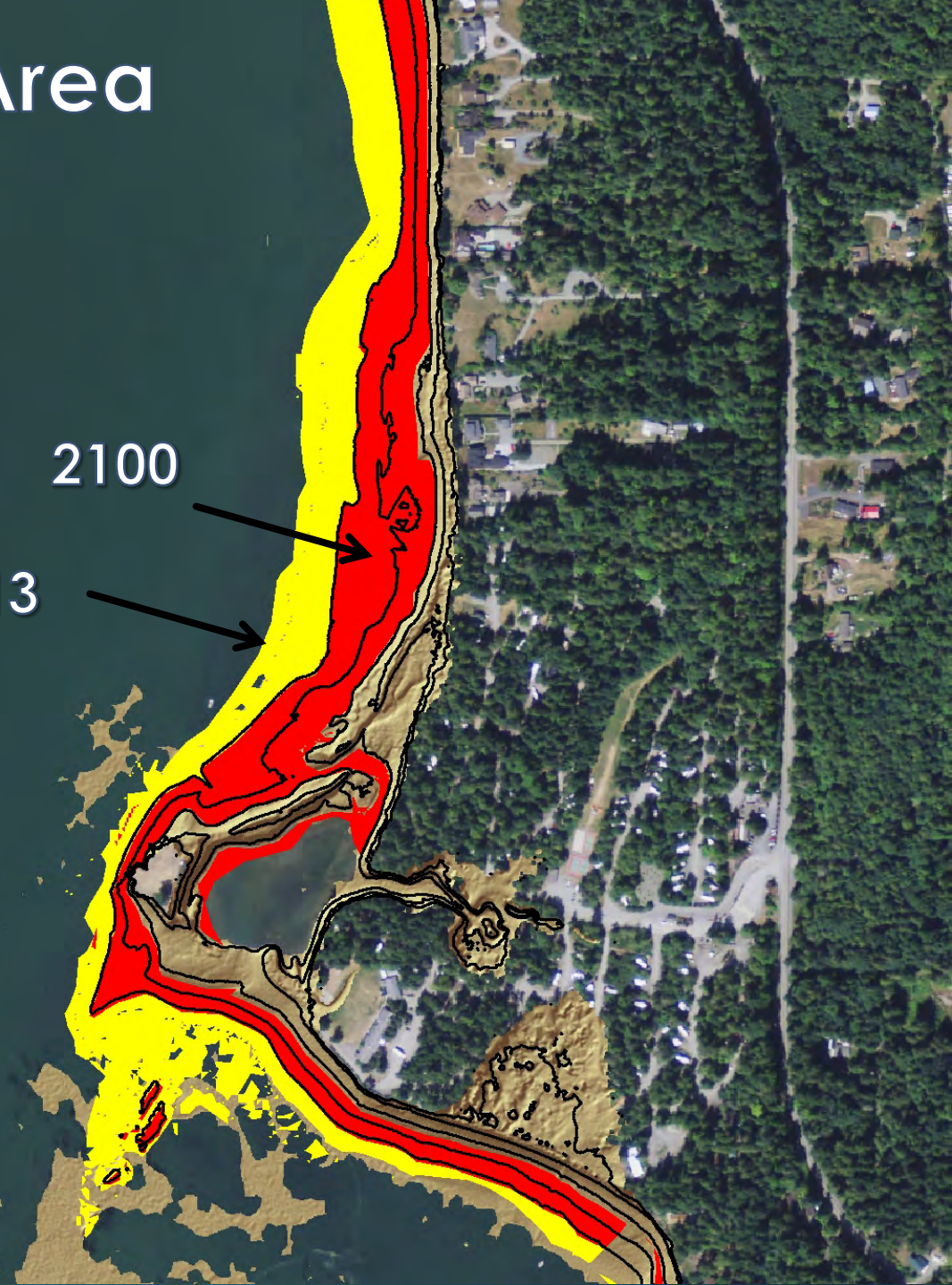
Today there are roughly 20 acres suitable for growing and harvesting shellfish at Lone Tree Point

By 2100 ~27% decrease in suitable shellfish growth & harvest area



2013

2100



Swinomish Community Health Sensitivity Matrix

Priority concerns:	Projected Impacts: <i>Low</i> → <i>High</i>				
	Potential opportunity (+ % Δ)	Low (0 to -25% Δ)	Medium (-26 to -50% Δ)	Medium-high (-51% to -75% Δ)	High (> -75% Δ)
<i>Low</i>			CC		CU
↓			SD		
<i>High</i>	ED	BA			
			NRS		

Δ = change; results are not representative of the community; results are for discussion purposes only

NRS = Natural Resources Security

ED = Education

SD = Self-Determination

CU = Cultural Use

CC = Community Connection

BA = (Resilience)

Overview: 2014-2017 Impacts to First Foods & Tribal Community Health and Well-being

Geology, winds, storm surge, sea level rise

- E.g, sediment dynamics, salinity gradients



Effects on wildlife, habitats

- pocket estuaries, eelgrass beds, beaches, bluffs and backshore
- Salmon, forage fish, clams, crab, traditional plants, cultural areas



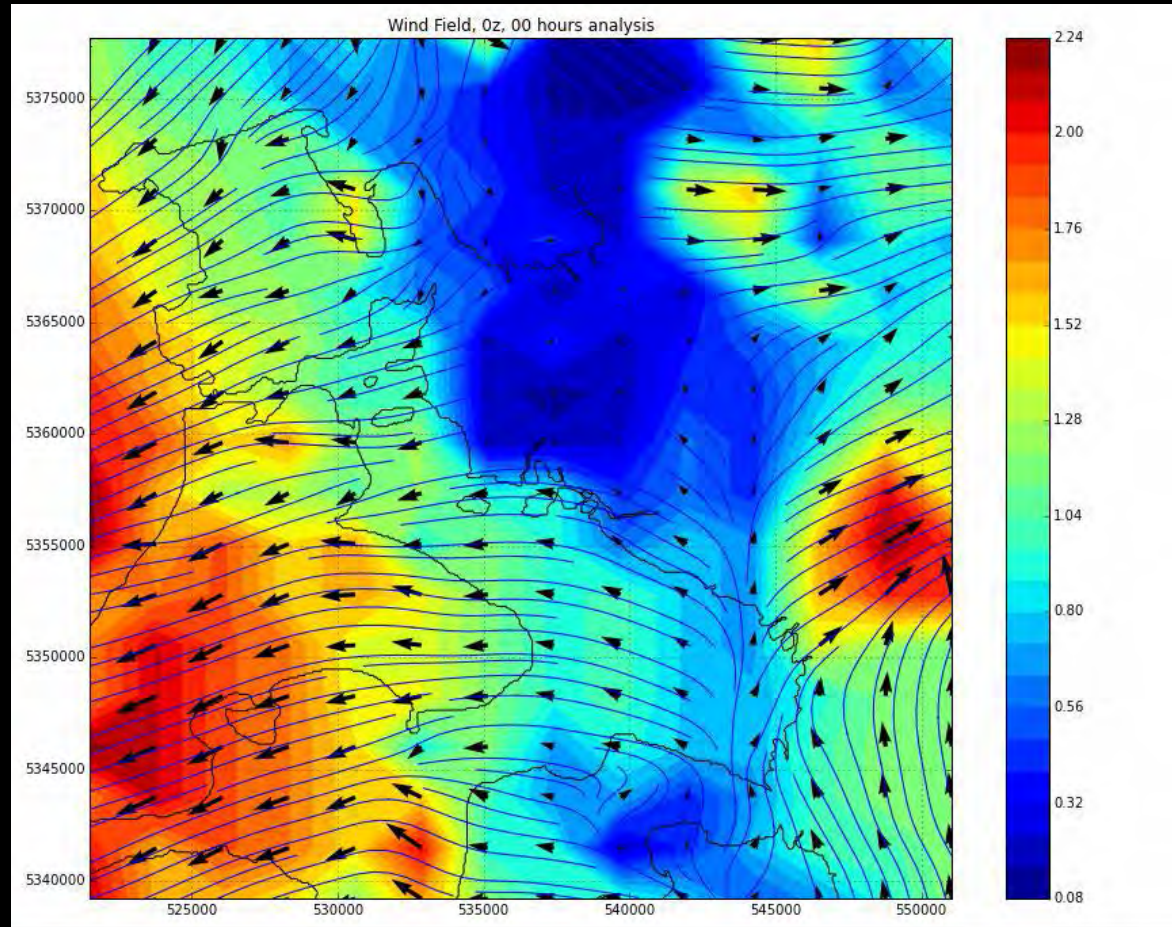
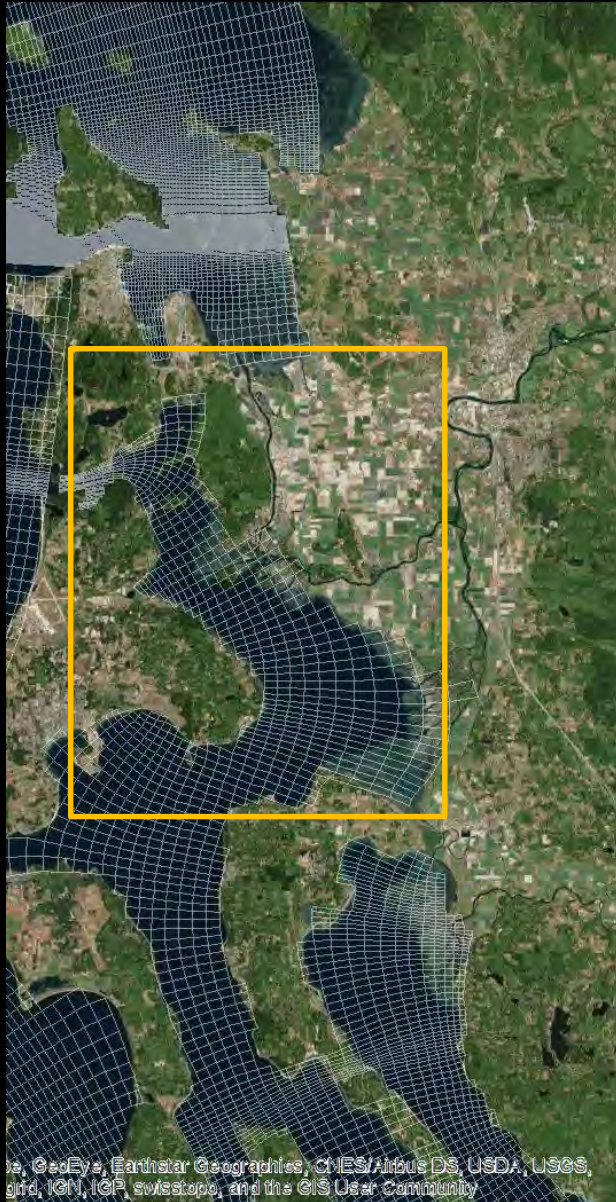
Impacts to people

- Community, cultural use, self-determination, education, resiliency



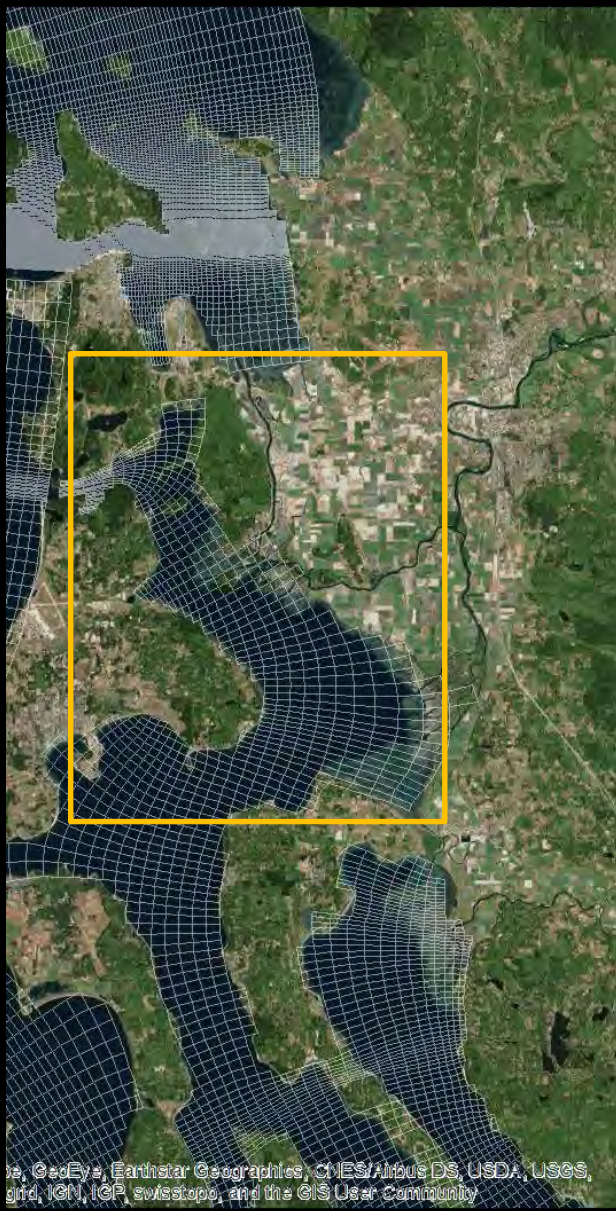
High-Resolution Skagit Bay Wave Model

Impacts to shellfish, salmon, habitats and access

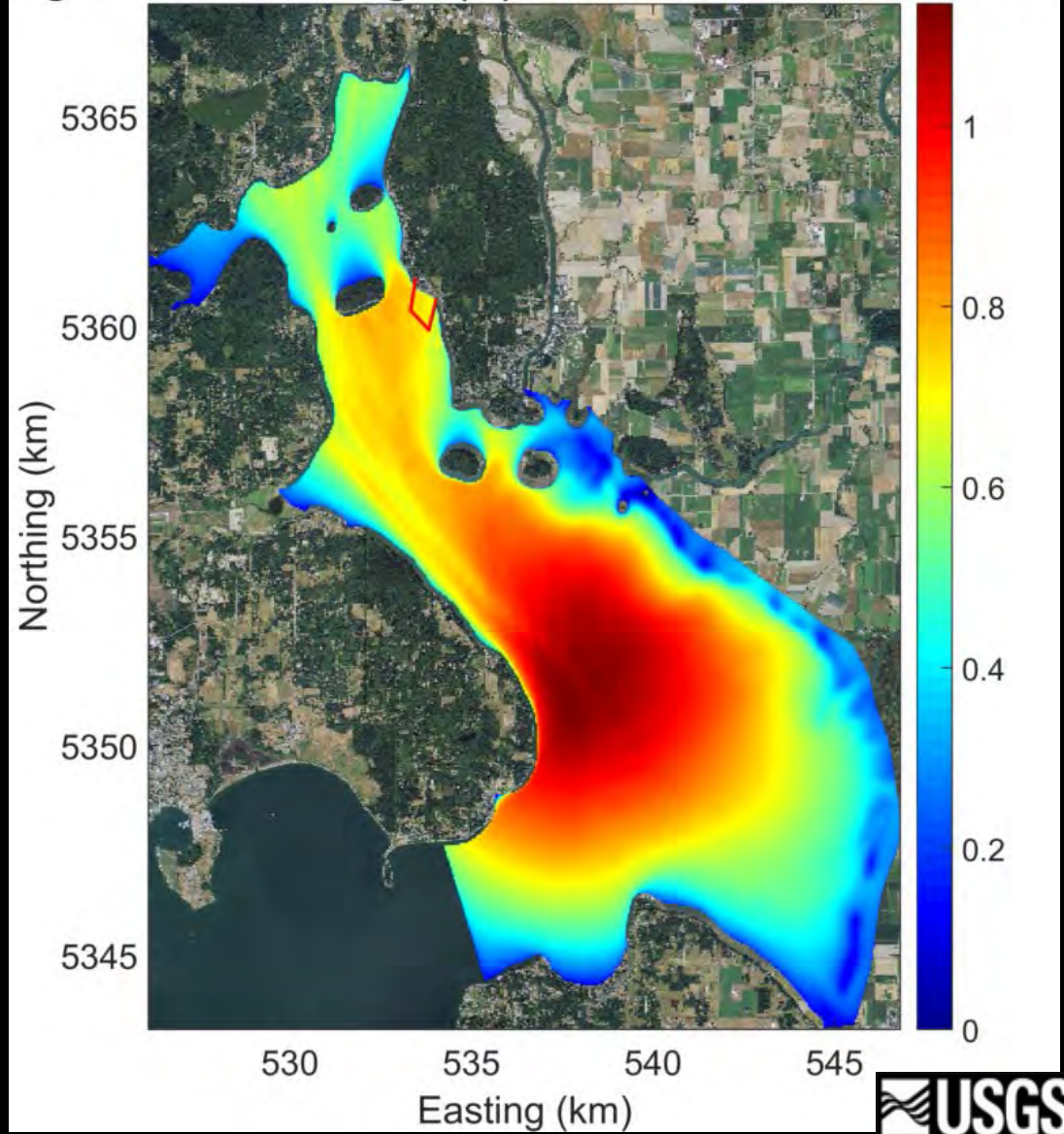


High-Resolution Skagit Bay Wave Model

Impacts to shellfish, salmon, habitats and access



Significant Wave Height (m) for wind storm of 08/29/2015

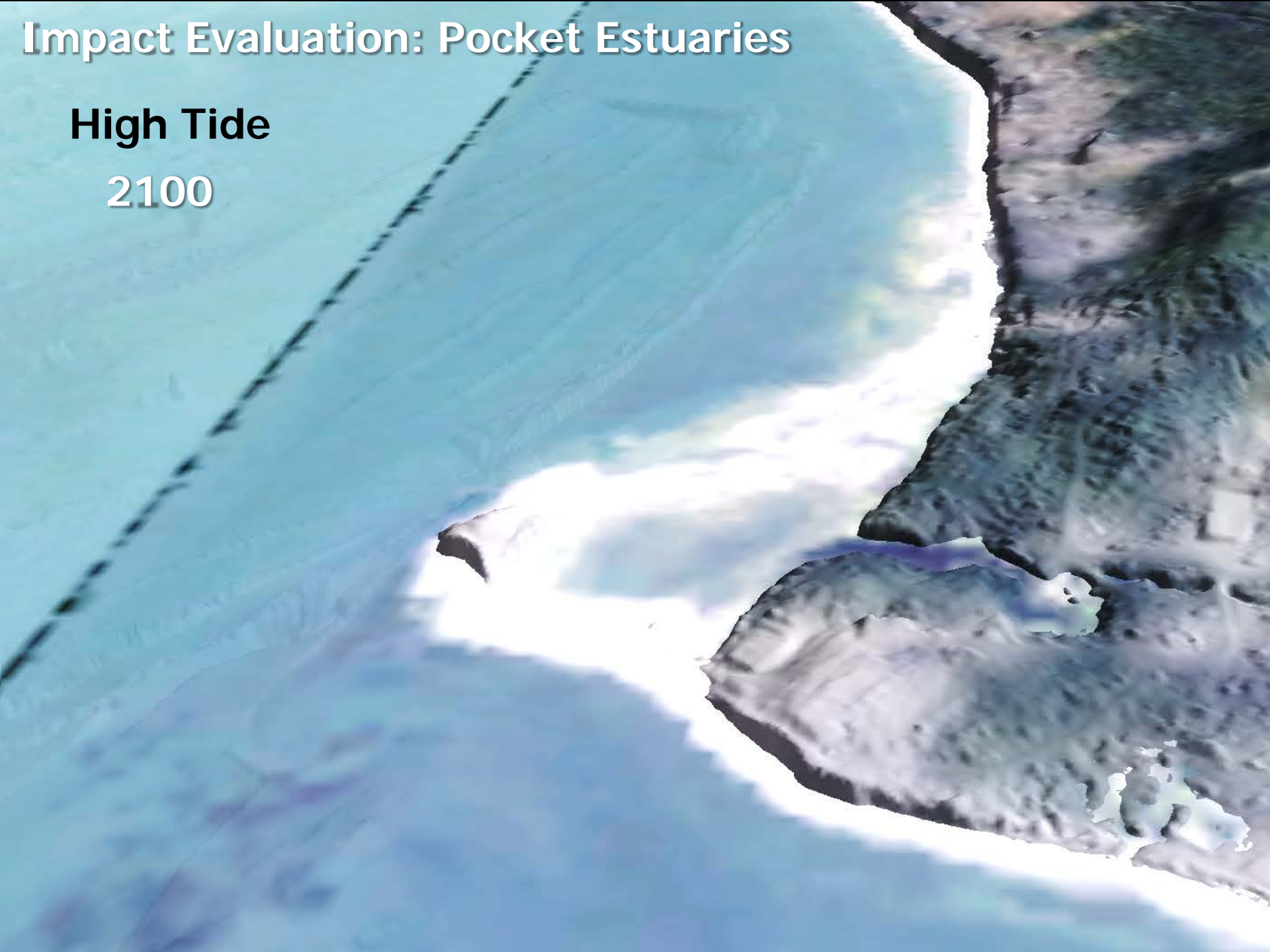


© 2015, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, IGP, swisstopo, and the GIS User Community

Impact Evaluation: Pocket Estuaries

High Tide

2100



Impact Evaluation: Pocket Estuaries

Climate Impacts

- Loss of juvenile salmon habitat
- Loss of shellfish harvest area
- Loss of fishing sites
- Loss of water quality and flooding benefits of salt marshes
- Loss of backshore plants



Expected results

- 1) Maps and models that highlight potential impacts in regard to Swinomish first foods and cultural sites.
- 2) An evaluation of community health impacts, concerns and priorities in relation to these impacts.
- 3) More detailed climate change assessment and strategies matrices, specifically filling in information gaps on vulnerable first foods and community health and well-being indicators, for use in planning.
- 4) Development of tools to be shared with other coastal tribal communities for climate change planning.
- 5) An education/ dissemination plan that will engage multiple sectors of the Swinomish Community and beyond.



First Salmon Ceremony offering

THANK YOU

For more information, please contact:

Larry Campbell
(360) 466-7352

lcampbell@swinomish.nsn.us

Dr. Jamie Donatuto
(360) 466-1532

jdonatuto@swinomish.nsn.us



Beach seining at Lone Tree.—*Photo by: Tyler Long*

Research supported by: Swinomish Tribe; EPA STAR #83479101 & #83559501; NPLCC, USFWS & NWCSC #F12AP00994; USGS

IHI website: www.swinomish-nsn.gov/ihi/

Workshops

Access: On a scale of 1-4, are there enough locations available to harvest?

Access: On a scale of 1-4, will there be enough locations available to harvest in 2100?

	<u>Now:</u>	<u>2100:</u>
1. Things are very bad	0%	18%
2. Not very good	46%	64%
3. Looking pretty good	46%	18%
4. We're doing great	8%	0%